Nonlinear optical properties of Zn1−xMgxSe and Cd1−xMgxSe crystals

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Résumé en anglais	Nonlinear optical properties of Zn1−xMgxSe and Cd1−xMgxSe crystals have been studied using degenerate four wave mixing (DFWM), nonlinear transmission (NLT), second harmonic generation (SHG) and third harmonic generation (THG) methods by Nd:YAG laser operating at 532 nm and 1064 nm, respectively. The studied Zn1−xMgxSe and Cd1−xMgxSe crystals were grown from the melt by the modified high-pressure Bridgman method. The quadratic nonlinear optical properties of ternary crystals were investigated by second harmonic generation (SHG) technique. We found that the highest value of the second order nonlinear optical susceptibility was obtained for Cd0.7Mg0.3Se. In the case of cubic nonlinear optical properties we used third harmonic generation (THG) and degenerate four wave mixing (DFWM) methods. We found that the values of third order nonlinear optical susceptibility for Cd1−xMgxSe crystals are higher than for Zn1−xMgxSe ones.
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